

Arcam A2

Setting the standard for
Additive Manufacturing



Additive Manufacturing Realized

The Arcam A2 is the ultimate solution for Additive Manufacturing in the digital age. It is developed for cost-effective production of demanding applications such as structural Aerospace components meeting the highest material standards.

Features include:

- Large build volume for manufacturing of large components.
- Two interchangeable build tanks delivered with each machine. Choose between wide and tall depending on the build at hand.
- MultiBeam™ technology, for high productivity and surface quality.
- Easy to use operator interface.
- LogStudio™, a tool for process validation and quality control.

The EBM technology

The Arcam A2 is designed for production of any functional part within Aerospace and General Industry. The parts are built up layer-by-layer of metal powder melted by a powerful electron beam. Each layer is melted to the exact geometry dictated by the 3D CAD model. The Electron Beam Melting technology allows for high energy to be used providing high melting capacity and productivity. Parts are built in vacuum at elevated temperatures resulting in stress relieved parts with material properties better than cast and comparable to wrought material.

The Arcam A2 is capable of delivering a beam power of up to 3500 W while maintaining a scan speed that allows melting at multiple points simultaneously. The vacuum system is designed to maintain a vacuum level of 1×10^{-4} mBar or better throughout the entire build cycle.

Race car gearbox casing manufactured with Arcam EBM in Ti6Al4V



Powder Recovery System

The Arcam A2 is delivered with a Powder Recovery System enabling 95% recovery of unmelted powder in a build. The Powder Recovery System runs with minimal dust generation



The Arcam Powder Recovery System in action.

for safe operation, closed-loop material recovery and elimination of magnetic materials and fine particles.

After the recovery process the recycled powder is ready for re-use in the EBM process.

Materials

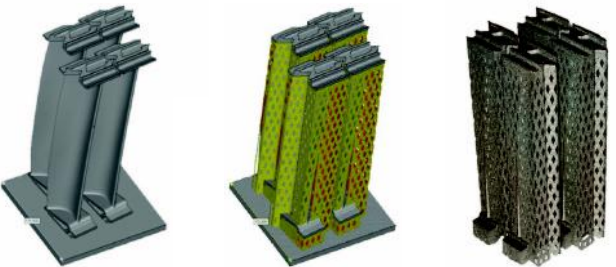
The materials supplied by Arcam are extensively tested before release to customers and the configuration of the powder is optimised for safe and reliable operation of the EBM process.

Support, Maintenance and Training

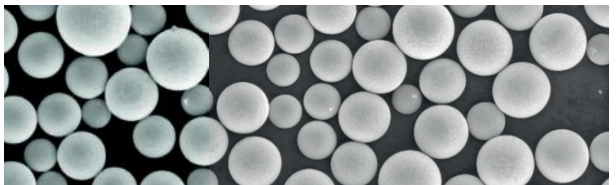
Arcam offers support and maintenance to ensure highest possible performance of the Arcam A2 throughout its lifetime. This is offered on different levels and includes on-line and application support, preventative maintenance, emergency visits, spare parts and software updates. Training packages are available to ensure a smooth and efficient start-up of the Arcam A2 as well as more in-depth training for continuous improvements.



Full size γ -TiAl low pressure turbine blades manufactured with EBM.



3D CAD-model. 3D CAD-model with support structure. As-built blades still with support structure.



Spherical metal powders supplied by Arcam are optimized for reliable and safe operation.



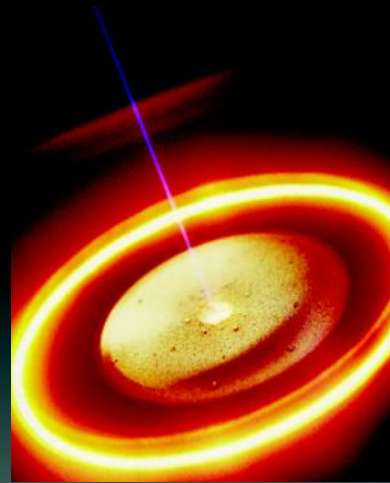
ARCAM A2 TECHNICAL DATA

Build tank volume	250x250x400 mm and 350x350x250 mm (W x D x H)
Maximum build size	200x200x350 mm and Ø 300x200 mm (W x D x H)
Model-to-Part accuracy, long range ¹	+/- 0.20 mm (3σ)
Model-to-Part accuracy, short range ¹	+/- 0.13 mm (3σ)
Surface finish (vertical & horizontal) ²	Ra25/Ra35
Beam power	50–3500 W (continuously variable)
Beam spot size (FWHM)	0.2 mm – 1.0 mm (continuously variable)
EB scan speed	up to 8000 m/s
Build rate ²	55/80 cm ³ /h (Ti6Al4V)
No. of Beam spots	1–100
Vacuum base pressure	<1x10 ⁻⁴ mBar
Power supply	3 x 400 V, 32 A, 7 kW
Size and weight	1850 x 900 x 2200 mm (W x D x H), 1420 kg
Process computer CAD interface	PC
CAD interface	Standard: STL
Network	Ethernet 10/100/1000
Certification	CE

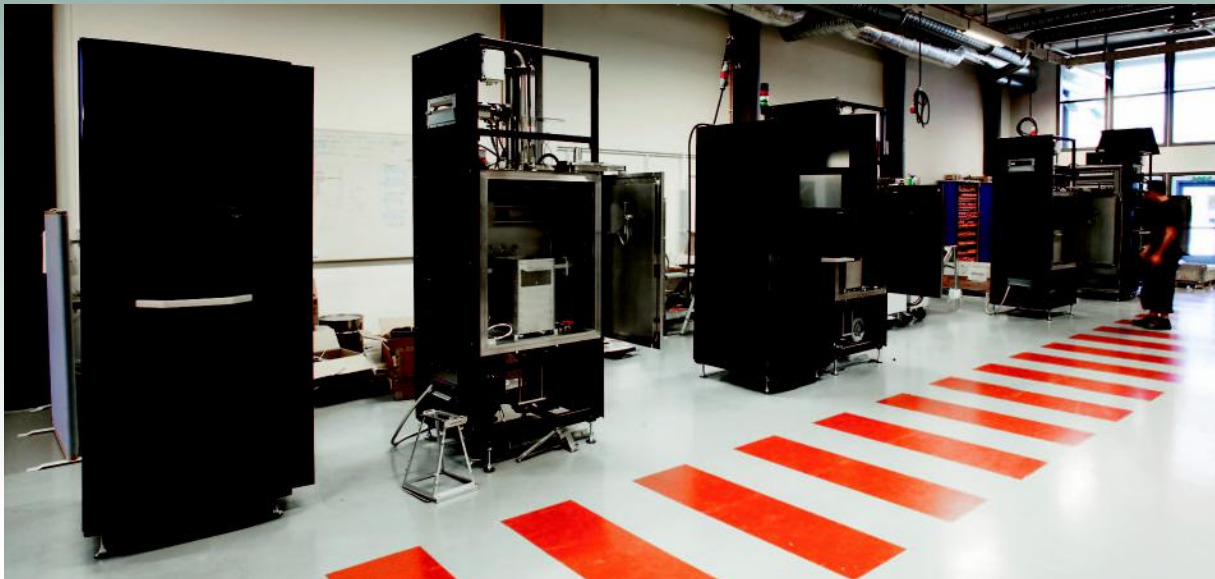
¹ Long range: 100 mm, Short range: 10 mm, measured on Arcam Standard Test Part (ASTP).

² Measured on Arcam Standard Test Part (ASTP).

Settings optimized for fine surface quality/Settings optimized for high build speed.



Inside the Arcam EBM process – a melt pool in the Ti6Al4V powder bed is created by the powerful electron beam.



Arcam A2 assembly line.



Arcam AB | Krokslätts Fabriker 27A, SE 431 37 Mölndal, Sweden | Phone: +46 31 710 32 00 | Fax: +46 31 710 32 01 | info@arcam.com | www.arcam.com

Arcam provides **Free Form Fabrication** machines for **Additive Manufacturing** of metal parts. The technology offers ultimate geometric freedom combined with first class material properties. Arcam is guided by our vision to revolutionize the art of manufacturing. Use Arcam to manufacture your future.